US008245844B2

(12) **United States Patent**
Sorrentino et al.

(10) **Patent No.: US 8,245,844 B2**
(45) **Date of Patent: Aug. 21, 2012**

(54) **DISPLAY PACKAGE**

(75) Inventors: **Alan Sorrentino**, Cranbury, NJ (US); **Robert Moskovich**, East Brunswick, NJ (US); **Andreas Haefliger**, Triengen (CH)

(73) Assignee: **Colgate-Palmolive Company**, New York, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 204 days.

(21) Appl. No.: **12/724,839**

(22) Filed: **Mar. 16, 2010**

(65) **Prior Publication Data**

US 2010/0230312 A1 Sep. 16, 2010

Related U.S. Application Data

(60) Provisional application No. 61/160,481, filed on Mar. 16, 2009.

(51) **Int. Cl.**
B65D 85/00 (2006.01)
B65D 75/36 (2006.01)

(52) **U.S. Cl.** **206/362.1**; 206/362; 206/471

(58) **Field of Classification Search** 206/362, 206/362.1, 362.2, 369, 463, 462, 461, 471, 206/459.5, 459.1; 220/23.83, 23.86
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D36,404	S		3/1903	Koch
3,074,540	A		1/1963	Beich et al.
D196,988	S	*	11/1963	Wills, Jr. et al. D9/756
D197,862	S		3/1964	Wills, Jr.
3,369,660	A		2/1968	Hartman
3,567,013	A		3/1971	Tannebaum
3,759,375	A		9/1973	Nappi
D267,394	S		12/1982	Liptak et al.
RE3,157	E		5/1984	Mann
RE31,571	E		5/1984	Mann
4,512,474	A		4/1985	Harding
D281,306	S		11/1985	Reichenstein
D281,580	S		12/1985	Stevens
D283,489	S		4/1986	Stevens

(Continued)

FOREIGN PATENT DOCUMENTS

DE 2364259 6/1975

(Continued)

OTHER PUBLICATIONS

Written Opinion of the International Preliminary Examining Authority mailed Jun. 27, 2011 for corresponding International Application No. PCT/US2010/027449.

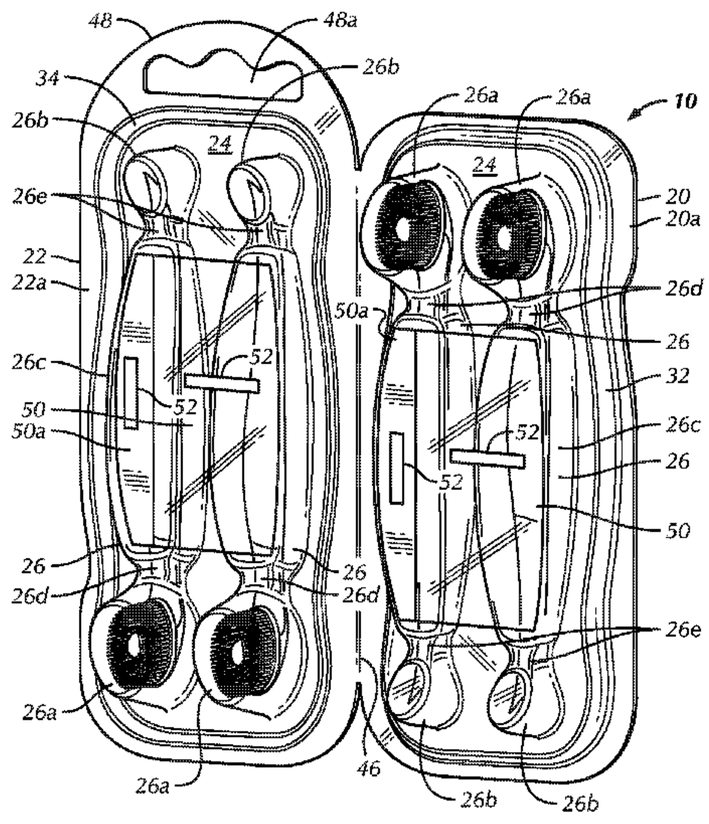
(Continued)

Primary Examiner — Steven A. Reynolds
(74) *Attorney, Agent, or Firm* — Judy W. Chung

(57) **ABSTRACT**

A package for displaying a plurality of items where the package has first and second containers connectable between an open position and a closed position, each container having an outer surface having at least one elongated protrusion, the at least one protrusion having a head end and a tail end, the head end extending further outwardly from the package than the tail end, and an inner surface having at least one inner cavity aligned with the at least one protrusion, the cavity having a depth varying along the protrusion and configured to receive one of the plurality of items, wherein the head end of the at least one protrusion of the first container is proximate the tail end of the at least one protrusion of the second container in the closed position.

16 Claims, 6 Drawing Sheets



U.S. PATENT DOCUMENTS

D291,064	S	7/1987	Haber et al.	
D294,123	S	2/1988	Hill	
4,756,419	A	7/1988	LeBras	
4,759,935	A	7/1988	Toshitsugu	
4,779,734	A	10/1988	Kydonieus	
4,899,927	A	2/1990	Straub et al.	
D306,404	S	3/1990	Hill	
4,951,867	A	8/1990	McManus	
5,018,622	A	5/1991	Hartley	
5,022,525	A	6/1991	Schuster	
5,025,964	A	6/1991	Phirippidis	
5,029,702	A	7/1991	Tong	
5,031,939	A	7/1991	Webendorfer et al.	
5,048,684	A	9/1991	Scott	
D320,930	S	10/1991	Richards	
D321,323	S	11/1991	Nakamura	
5,082,112	A	1/1992	Dunklee	
5,094,347	A	3/1992	Schuster	
5,121,835	A	6/1992	Grupe	
5,129,527	A	7/1992	Lataix	
5,135,158	A	8/1992	Boyle et al.	
5,152,397	A	10/1992	Mayled	
5,158,177	A	10/1992	Negelen et al.	
5,195,633	A	3/1993	Kaminski	
5,209,354	A	5/1993	Thornhill et al.	
5,226,534	A	7/1993	Kim	
5,244,091	A	9/1993	Tannenbaum	
5,265,728	A	11/1993	Allendorf et al.	
5,282,567	A	2/1994	Dickson	
5,284,291	A	2/1994	Sellors	
5,289,916	A	3/1994	Mickelberg	
5,295,623	A	3/1994	Bacques et al.	
5,297,673	A	3/1994	Sutherland	
D345,909	S	4/1994	Winston	
D346,114	S	4/1994	Winston	
5,311,984	A	5/1994	Harris	
5,311,989	A	5/1994	Ward et al.	
D347,998	S	6/1994	Steenwinkel	
5,323,907	A	6/1994	Kalvelage et al.	
5,332,085	A	7/1994	Fraser	
5,348,145	A	9/1994	Steinfel, III	
D352,236	S	11/1994	Althaus	
D354,679	S	1/1995	Dunn et al.	
5,390,784	A	2/1995	Sutherland	
5,390,848	A	2/1995	Gungner et al.	
5,398,442	A	3/1995	Musket	
5,407,066	A	4/1995	Grange	
5,413,276	A	5/1995	Sheffer	
5,414,890	A	5/1995	Morando	
5,439,112	A	8/1995	DeGuglielmo et al.	
5,443,203	A	8/1995	Sutherland	
5,447,232	A	9/1995	Chow	
5,456,352	A	10/1995	McQueeny	
D364,561	S	11/1995	Chapman et al.	
D365,984	S	1/1996	Hofmann	
5,485,913	A	1/1996	Steinfel, III	
5,485,919	A	1/1996	Samberg et al.	
5,489,025	A	2/1996	Romick	
D369,546	S	5/1996	Chapman et al.	
5,520,283	A	5/1996	Sutherland	
D371,068	S	6/1996	Chapman et al.	
D371,069	S	6/1996	Chapman et al.	
5,524,756	A	6/1996	Sutherland	
5,540,381	A	7/1996	Davis	
5,542,536	A	8/1996	Sutherland	
5,544,755	A	8/1996	Paumen et al.	
5,549,197	A	8/1996	Sutherland	
5,549,204	A	8/1996	Toren	
D373,306	S	9/1996	Baxter	
5,558,224	A	9/1996	Fogle	
5,579,990	A	12/1996	Durand	
5,593,041	A	1/1997	Capozzi	
5,595,047	A	1/1997	Paumen et al.	
5,595,291	A	1/1997	Negelen	
5,624,036	A	4/1997	Roulin et al.	
5,653,340	A	8/1997	Daniel	
5,671,845	A	9/1997	Harris	
5,682,995	A	11/1997	Sutherland	
5,685,420	A	11/1997	Martin et al.	
5,695,056	A	12/1997	Bender et al.	
5,697,502	A	12/1997	Linz	
5,803,264	A	9/1998	Gersten et al.	
5,826,728	A	10/1998	Sheffer	
5,845,776	A	12/1998	Galbierz et al.	
5,855,275	A	1/1999	Hunter et al.	
5,857,612	A	1/1999	Smith et al.	
5,881,885	A	3/1999	Grimm	
5,881,977	A	3/1999	Danneberg	
5,887,706	A	3/1999	Pohle et al.	
D408,278	S	4/1999	Konop	
5,913,426	A	6/1999	Lotz Renfro et al.	
5,919,074	A	7/1999	Honda	
5,921,392	A	7/1999	Davis	
5,944,183	A	8/1999	Rowland et al.	
5,957,289	A	9/1999	Negelen	
5,967,406	A	10/1999	Moorman	
5,984,086	A	11/1999	Foushee et al.	
D419,063	S	1/2000	Baker et al.	
6,012,573	A	1/2000	Kurimoto	
6,015,043	A	1/2000	Sandberg et al.	
D420,905	S	2/2000	Adkins	
6,024,222	A	2/2000	Friberg et al.	
D421,898	S	3/2000	Strange	
6,045,038	A	4/2000	Smith et al.	
D423,927	S	5/2000	Senyuva et al.	
D425,414	S	5/2000	Baker et al.	
6,059,106	A *	5/2000	Baker et al.	206/361
D427,523	S	7/2000	Calcerano	
6,116,420	A	9/2000	Hall et al.	
D432,414	S	10/2000	Simpson et al.	
6,138,828	A	10/2000	Bendix	
D434,315	S	11/2000	Clarke	
D439,158	S	3/2001	Forakis	
6,199,692	B1	3/2001	Van Ness et al.	
6,227,369	B1	5/2001	Glassman	
6,237,773	B1	5/2001	Goldman	
6,244,502	B1	6/2001	Hollar et al.	
D444,380	S	7/2001	Matner	
D446,713	S	8/2001	Adam	
D449,780	S	10/2001	Corella	
6,296,120	B1	10/2001	Danko	
6,298,995	B1	10/2001	Schwester	
6,305,598	B1	10/2001	Bryan	
D451,382	S	12/2001	Adkins	
6,325,209	B1	12/2001	Humphrey	
6,357,593	B1	3/2002	Bolnick et al.	
D455,071	S	4/2002	Ruben	
6,364,115	B1	4/2002	Casanova et al.	
6,378,765	B1	4/2002	Sutherland	
6,386,369	B2	5/2002	Yuhas et al.	
6,419,085	B1	7/2002	Humphrey	
D461,713	S	8/2002	Foreman	
6,431,543	B1	8/2002	Cole et al.	
6,460,703	B1	10/2002	Thompson et al.	
6,478,336	B2	11/2002	Tran	
D470,046	S	2/2003	Chao	
D470,385	S	2/2003	Chen	
6,523,684	B1	2/2003	Daniels, Jr.	
D471,443	S	3/2003	Chiang	
D472,140	S	3/2003	Yang	
6,581,777	B2	6/2003	Thibault	
D478,810	S	8/2003	Wilson	
6,615,985	B1	9/2003	Foreman	
6,644,473	B2	11/2003	Kohler	
6,651,846	B2	11/2003	Duquet et al.	
D484,798	S	1/2004	Bukowski	
6,726,011	B2	4/2004	Sarar et al.	
6,736,260	B2	5/2004	Gomes et al.	
6,749,060	B2	6/2004	Ford	
6,758,338	B2	7/2004	Lien	
6,793,071	B2	9/2004	Rhyne et al.	
6,802,415	B2	10/2004	Loeffler	
6,840,437	B2	1/2005	Chen	
D501,791	S	2/2005	Geiberger et al.	
6,871,778	B2	3/2005	Petrelli et al.	
6,874,679	B2	4/2005	Tibbles et al.	
6,877,600	B2	4/2005	Sutherland	

D504,811	S	5/2005	Haingaertner	
6,889,829	B2	5/2005	Lev et al.	
6,889,840	B2	5/2005	Schein et al.	
D506,146	S	6/2005	Hall	
D506,147	S	6/2005	Hall	
D506,397	S	6/2005	Hall	
D507,756	S	7/2005	Hall	
6,920,980	B2	7/2005	Hwang et al.	
D512,330	S	12/2005	Hall	
D513,596	S	1/2006	Hamblin et al.	
6,988,617	B2	1/2006	Gomes et al.	
D515,941	S	2/2006	Hamblin et al.	
D515,942	S	2/2006	Hamblin et al.	
D515,943	S	2/2006	Hamblin et al.	
6,997,372	B2	2/2006	Gasparowicz	
7,000,774	B2	2/2006	Bryant	
D516,609	S	3/2006	Rose	
7,021,458	B2	4/2006	Cummings	
7,073,705	B2	7/2006	Auclair et al.	
D525,866	S	8/2006	Oliveira	
7,083,046	B2	8/2006	Bakx	
7,094,981	B2 *	8/2006	Sorrentino et al.	200/332.2
7,097,034	B2	8/2006	Woog	
D531,026	S	10/2006	McMorris	
D532,612	S	11/2006	Lamason et al.	
D532,690	S	11/2006	Oliveira	
7,137,508	B2	11/2006	Schultz et al.	
7,159,721	B2	1/2007	Martin, Jr.	
D536,609	S	2/2007	Moskovich et al.	
D538,676	S	3/2007	Millen	
RE39,565	E	4/2007	Humphrey	
7,225,925	B2	6/2007	Chen et al.	
D548,619	S	8/2007	Ferguson et al.	
D549,572	S	8/2007	Althouse et al.	
7,255,262	B2	8/2007	Duyst	
D552,466	S	10/2007	Proudfit	
D554,492	S	11/2007	Bochmann et al.	
D554,493	S	11/2007	Bochmann et al.	
D554,495	S	11/2007	Hanji et al.	
D556,569	S	12/2007	Stein et al.	
D558,602	S	1/2008	Kissner et al.	
D561,609	S	2/2008	McMorris	
7,341,153	B2	3/2008	DuBois et al.	
D567,646	S	4/2008	Ballard	
7,374,038	B2	5/2008	Smalley	
D570,684	S	6/2008	Kisch	
7,410,094	B2	8/2008	Bos	
7,445,118	B2	11/2008	Schroeder	
7,464,818	B2	12/2008	Gherdan et al.	
7,469,814	B2	12/2008	Philips	
7,484,654	B2	2/2009	Tibbles et al.	
D594,347	S	6/2009	Sorrentino et al.	
D594,348	S	6/2009	Sorrentino et al.	
7,556,152	B2 *	7/2009	Lechelle	206/581
D605,530	S	12/2009	Sorrentino et al.	
7,699,170	B2 *	4/2010	Klein et al.	206/499
7,886,905	B2 *	2/2011	Kamada	206/337
D634,626	S *	3/2011	Gustafson et al.	D9/434
2001/0054570	A1	12/2001	Danko	
2003/0213705	A1	11/2003	Woog	
2004/0108236	A1	6/2004	Reed et al.	
2004/0182733	A1	9/2004	Dunlap	
2005/0045526	A1	3/2005	Constant et al.	
2005/0056688	A1	3/2005	Hsi-Ching	
2005/0082194	A1	4/2005	Fry et al.	
2005/0098616	A1	5/2005	Chang	
2005/0112244	A1	5/2005	Hall	
2006/0037999	A1	2/2006	Tibbels et al.	
2006/0042988	A1	3/2006	Hjalmarsson	
2006/0048486	A1	3/2006	Laing et al.	
2006/0049240	A1	3/2006	LeBras	
2006/0102512	A1	5/2006	Lo Duca	
2006/0113215	A1	6/2006	Clements et al.	
2006/0118461	A1	6/2006	Calendrille, Jr.	
2006/0151585	A1	7/2006	Misjak	
2006/0157545	A1	7/2006	Auclair	
2006/0180643	A1	8/2006	Stephenson	
2006/0255108	A1	11/2006	Shmagin	
2006/0278561	A1	12/2006	Schierlmann	
2007/0000806	A1	1/2007	Oliveira	
2007/0187429	A1	8/2007	Farahmand	
2007/0227943	A1	10/2007	Foushee	
2007/0235367	A1	10/2007	Initini	
2007/0272586	A1	11/2007	Hession	
2008/0011637	A1	1/2008	Young et al.	
2008/0023472	A1 *	1/2008	Brandt	220/4.23
2008/0087568	A1	4/2008	Jabri	
2008/0116085	A1	5/2008	Artis et al.	
2008/0120798	A1	5/2008	Sorrentino et al.	
2008/0128428	A1	6/2008	Beckerman	
2008/0156675	A1	7/2008	Sandow	
2008/0217199	A1	9/2008	Burress et al.	
2008/0223909	A1	9/2008	Gessler	
2008/0302695	A1	12/2008	Meeren et al.	
2008/0314794	A1	12/2008	Bowman	
2009/0014353	A1	1/2009	Lewis, Jr. et al.	
2009/0032434	A1	2/2009	Kim	
2009/0044357	A1	2/2009	Chan et al.	
2009/0045096	A1	2/2009	Knutson et al.	

FOREIGN PATENT DOCUMENTS

EP	0556836		8/1993
EP	0648686		4/1995
EP	0777617	A1	6/1997
EP	0784022		7/1997
EP	1477426		11/2004
EP	1504693		2/2005
EP	1723980		11/2006
FR	2276801		1/1976
FR	2673604		9/1992
GB	879186		10/1961
WO	WO 93/16673		9/1993
WO	WO 95/17116		6/1995
WO	WO 97/02192		1/1997
WO	WO 01/36291		5/2001
WO	WO 02/32666		4/2002
WO	WO 02/49936		6/2002
WO	WO 03/104780		12/2003
WO	WO 2005/087614		9/2005
WO	WO 2006/119992		11/2006
WO	WO 2007/044456		4/2007
WO	WO 2007/067054		6/2007
WO	WO 2008/016630		2/2008
WO	WO 2008/039248		4/2008
WO	2008086389		7/2008
WO	2009000678		12/2008
WO	WO 2008/146836		12/2008

OTHER PUBLICATIONS

International Search Report from the European Patent Office dated Nov. 26, 2010 relating to corresponding International Application No. PCT/US2010/027449.

Partial International Search Report in International Application No. PCT/US10/027449, mailed Jul. 9, 2010.

* cited by examiner

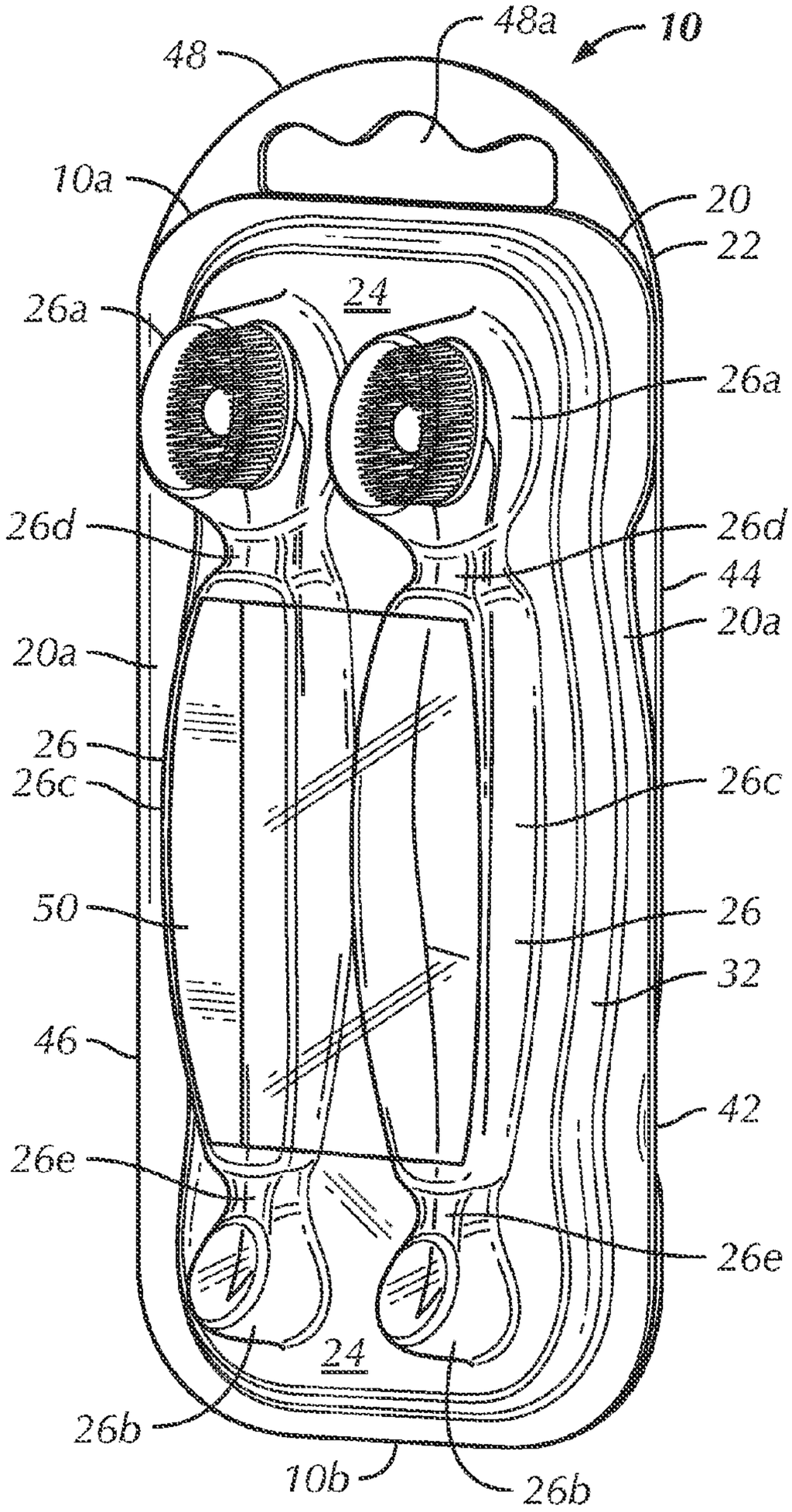

48a
10
48
10a
20
22
24
26a
26a
26d
26d
44
20a
20a
26
26c
26c
50
26
32
46
42
26e
26e
24
26b
10b
26b

FIG. 1

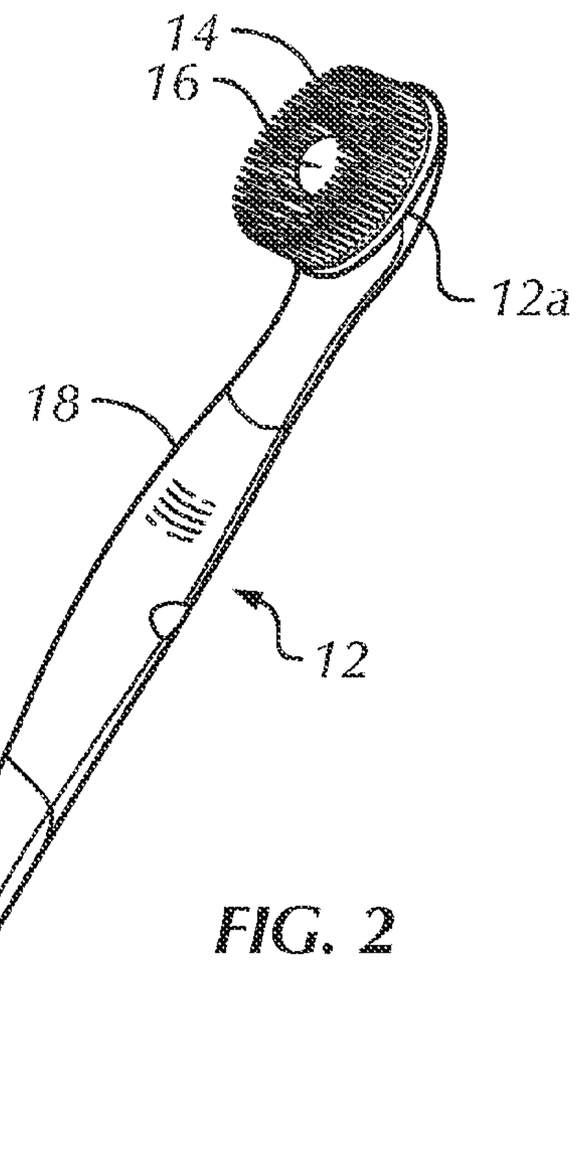

14
16
12a
18
12
12b

FIG. 2

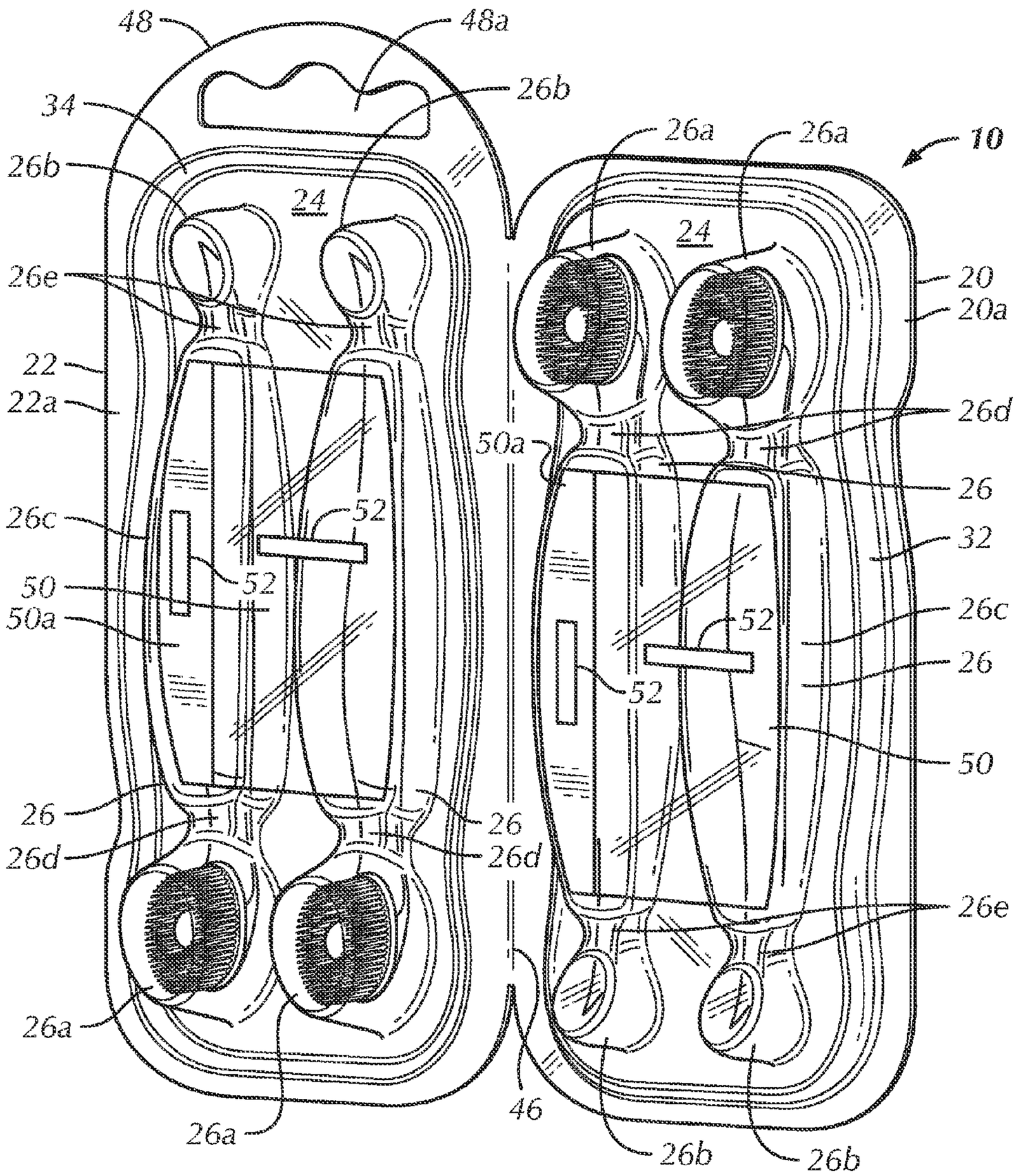

48
48a
34
26b
26a
26a
10
24
24
26e
20
20a
22
22a
26d
50a
26
52
26c
32
50
52
50a
26c
52
26
52
50
26
26
26d
26d
26e
26a
46
26b
26b
26a

FIG. 3

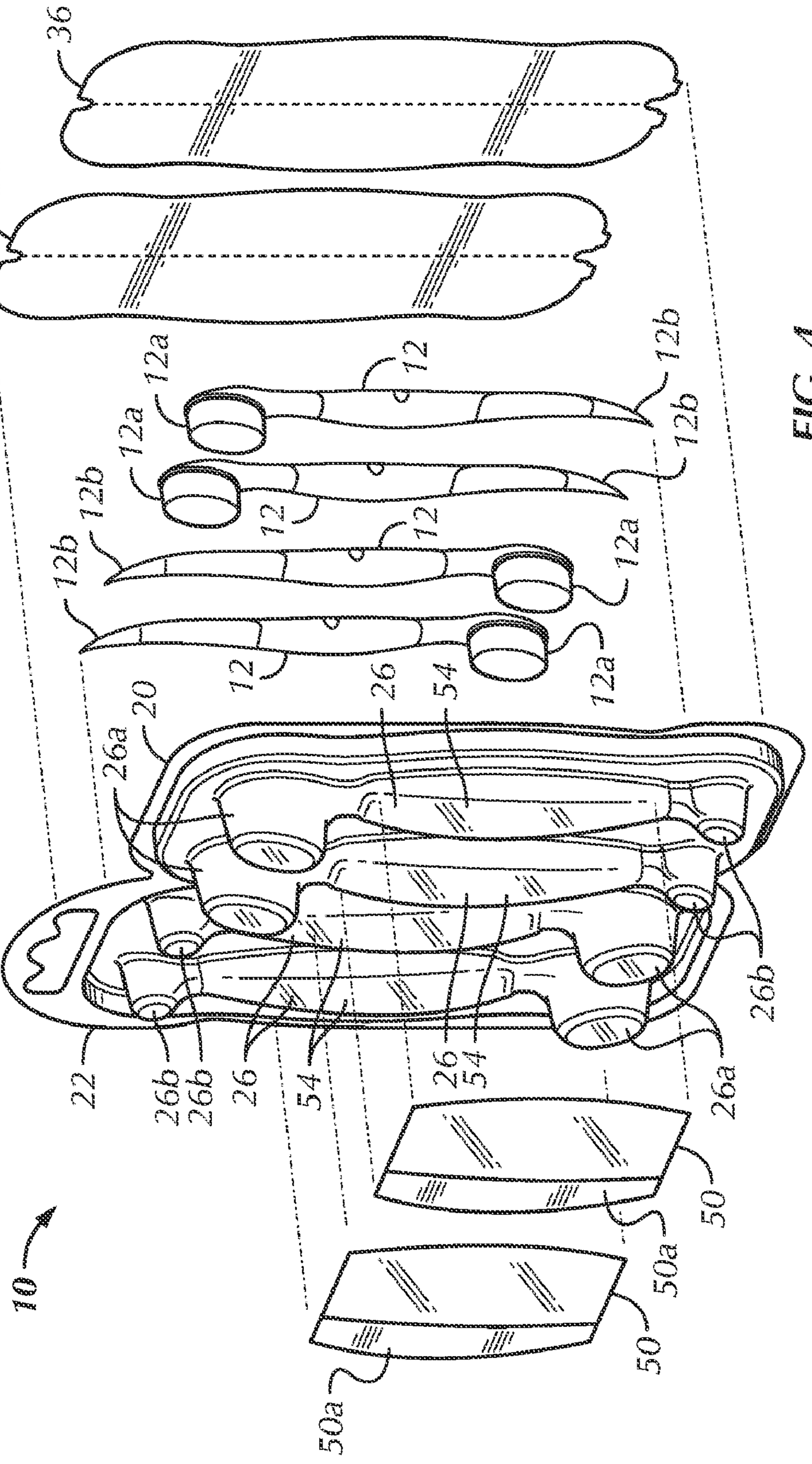

36
36
22
26b
26b
26
54
54
26
26a
26a
50
50
50a
50a
10
12
12a
12b
20
26a
26
54
26b

FIG. 4

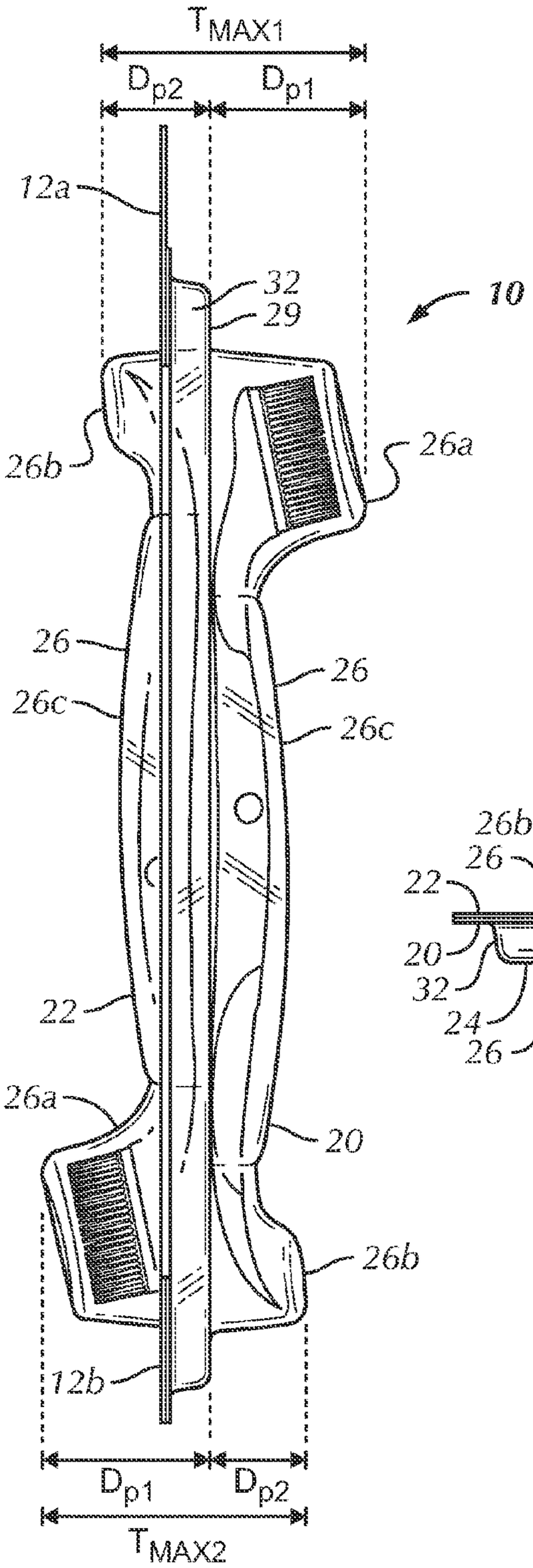

T_{MAX1}
D_{p2}
D_{p1}
12a
32
29
10
26b
26a
26
26
26c
26c
22
26a
20
26b
12b
D_{p1}
D_{p2}
T_{MAX2}

FIG. 5

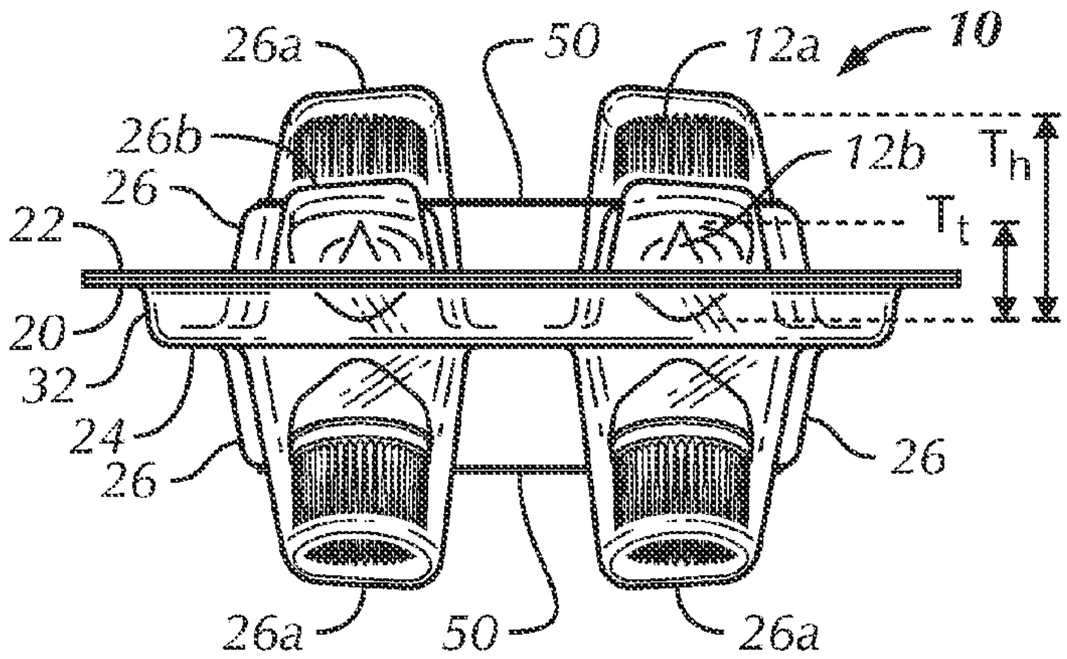

26a
50
12a
10
26b
12b
T_h
26
T_t
22
20
32
24
26
26
26a
50
26a

FIG. 6

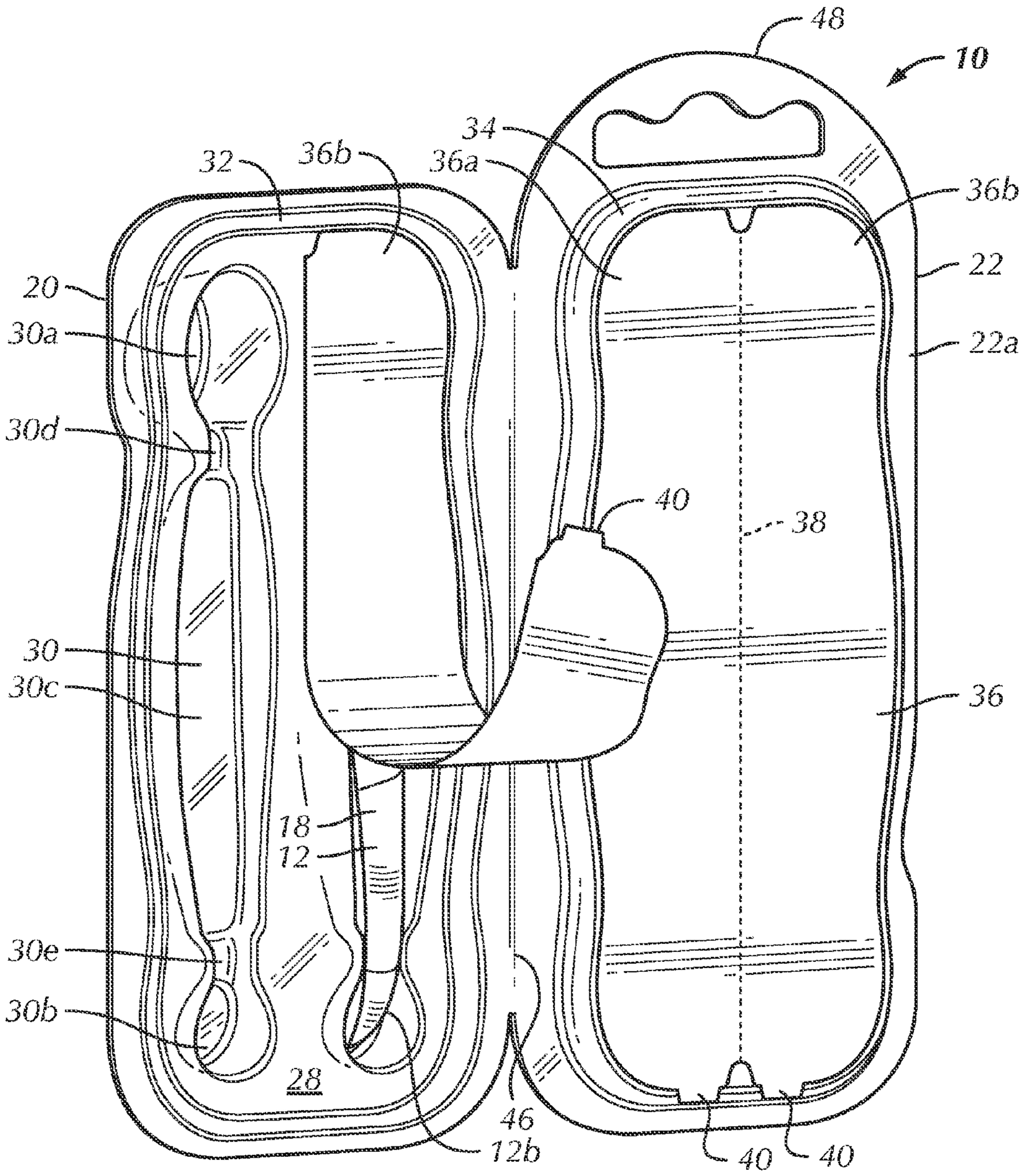

48
10
34
32
36b
36a
36b
22
20
30a
22a
30d
40
38
30
30c
36
18
12
30e
30b
28
46
12b
40
40

FIG. 7

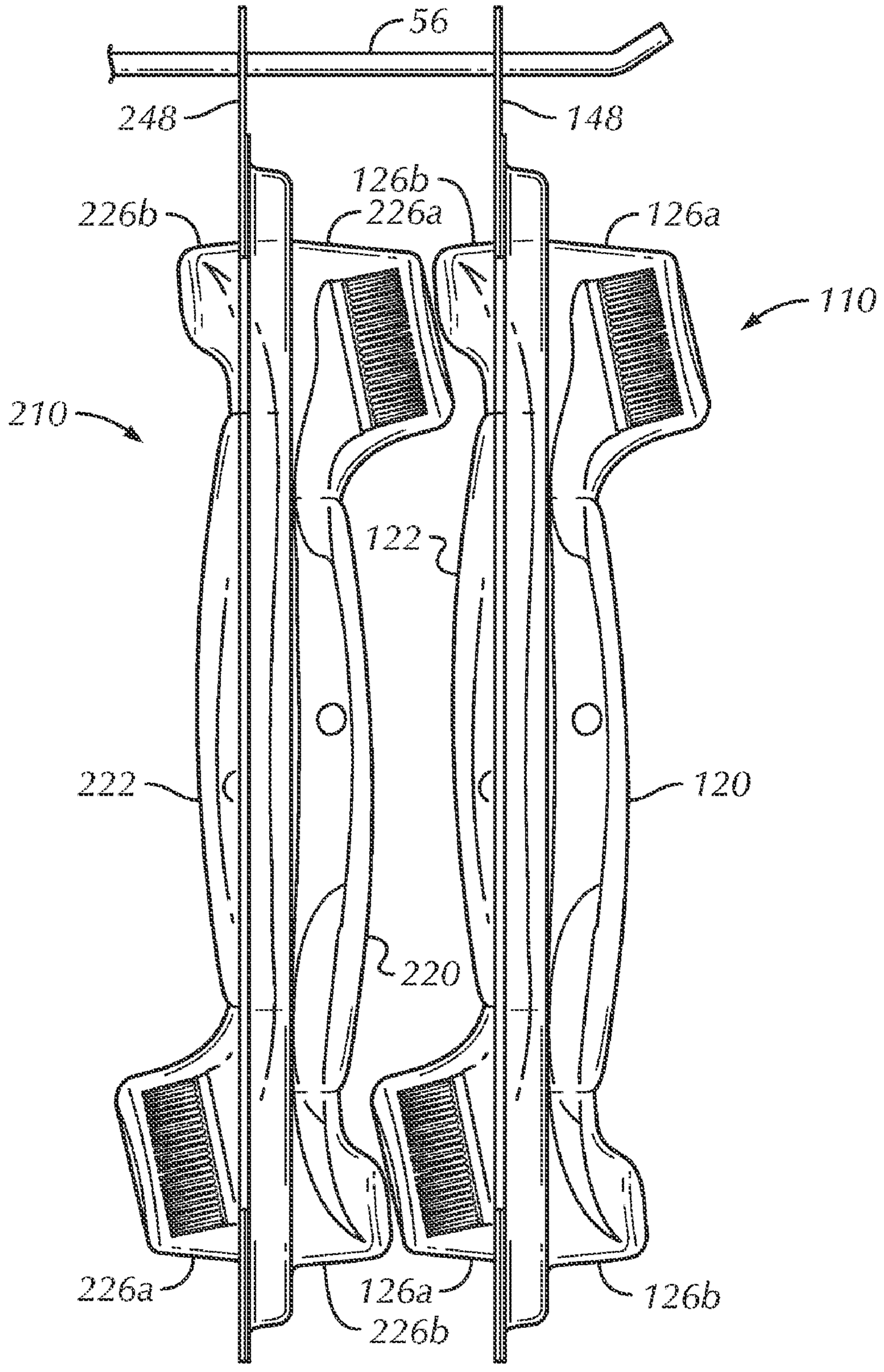

56
248
148
126b
226b
226a
126a
110
210
122
222
120
220
226a
126a
126b
226b

FIG. 8

DISPLAY PACKAGE

CROSS REFERENCE TO RELATED APPLICATION

This application claims the benefit of U.S. Provisional Patent Application Ser. No. 61/160,481, filed Mar. 16, 2009, the contents of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The present invention generally relates to a package for displaying a plurality of items.

Display packages of various types and configurations are well known in the art and are employed widely in the merchandising field for the display of a given product. Generally, such display packages are preformed closures such as blister or clamshell packages comprised of a substantially transparent polymeric material which allows the product to be viewed by the prospective consumer, and may take a number of forms or shapes depending upon the product to be sold. The package may be generally sealed to protect the items, maintain sanitary condition of the item and/or prevent damage during shipping and storage.

The prior art discloses various display packages. A package for a plurality of elongated swab type applicators is shown in U.S. Pat. No. 3,759,375. Each of the swab applicators is held in a separate sealed compartment and can be removed individually for use by removing the seal. However, this is not shown in a labeled form and as a display package. U.S. Pat. No. 5,048,684 discloses a compact package for syringes and catheters. A similar arrangement of packaged items also is shown in U.S. Des. 306,404. Improvements, however, can be made to these packages to increase their sustainability. The U.S. Patent Application 2006/0278561 discloses a display package for a group of coloration sticks for coloring wood and furniture. These are each in separate compartments of a two section display package with the sections connected by a hinge. This display package also has an aperture on an upper end so that it can be suspended from a prong by the merchant. However, it uses excess packaging material and is not shown in a labeled form. An unlabeled display package for a plurality of products, each in a separate compartment, is shown in U.S. Design Pat. 196,988. Two levels of separate product compartments, apparently for batteries, are shown. U.S. Pat. No. 5,018,622 discloses a battery display package for four batteries. This display package can be arranged for sale on a shelf or it can be suspended from a prong. However, it has a relatively large bulbous shape which limits the number of the packages that can be held on a prong at the point of sale. It also has a relatively large billboard type of label area which increases the amount of packaging material.

It would be desirable to provide a novel display package of high sustainability and which also maximizes the number of the display packages that can be held on the prongs of a point of sale rack. This is accomplished in the display package of the present invention

BRIEF SUMMARY OF THE INVENTION

The package of the present invention has a high degree of sustainability. The amount of packaging material used per packaged item is less than in many other types of packaging. In addition the package can be displayed in various ways by the merchant. The package can be displayed on a shelf and sold in a multi-pack format or can be suspended from a prong of a rack.

The present display package for a plurality of items further enhances the sustainability of such packages by reducing the overall packaging needed for the completed package, including the label. The label requirements are minimized in contrast to other label techniques, such as shrink wrap labeling. Further, the label remains a part of the package throughout its use. In addition, the display package has been developed to have an efficient stackable profile when suspended from the prongs of a rack so that a maximum number of the display packages can be neatly arranged for sale.

The invention is directed to a sustainable package for efficiently displaying a plurality of items where the package has first and second containers connectable between an open position and a closed position, each container having an outer surface having at least one elongated protrusion, the at least one protrusion having a head end and a tail end, the head end extending further outwardly from the package than the tail end, and an inner surface having at least one inner cavity aligned with the at least one protrusion, the cavity having a depth varying along the protrusion and configured to receive one of the plurality of items, wherein the head end of the at least one protrusion of the first container is proximate the tail end of the at least one protrusion of the second container in the closed position. The first and second containers can be connected by a hinge.

The at least one protrusion of the first container can be substantially the same size and shape as the at least one protrusion of the second container. In addition, each container can include two substantially identical protrusions each having substantially identical cavities, the head ends of the protrusions of the first container being proximate the tail ends of the protrusions of the second container in the closed position. The protrusions of each container can be laterally spaced from one another. The package further can have a generally planar front sheet of material affixed to and extending between the protrusions of the first container and optionally a planar rear sheet of material affixed to and extending between the protrusions of the second container. Each of the protrusions of the first container can be generally aligned with one of the protrusions of the second container in the closed position. The package further can include a first removable seal affixed to the inner surface of the first container sealing the cavities of the first container and a second removable seal affixed to the inner surface of the second container sealing the cavities of the second container, the first and second seals being concealed in the closed position and removable from the respective first and second container in the open position. The first and second removable seals can be each separable into at least two segments, each segment configured to individually seal one of the cavities.

The packaged items can be a toothbrush positioned within the at least one cavity and each of the cavities and the corresponding protrusion can generally be the same shape as the toothbrush. The brush head is received in the head end of the protrusion and is configured to face generally outwardly from the package in the closed position.

The package can have a first maximum thickness proximate a top of the package measured through the protrusions in the closed position and a second maximum thickness proximate a bottom of the package measured through the protrusions in the closed position, the first maximum thickness being generally equal to the second maximum thickness. The

head and tail ends of each of the at least one protrusions are generally bulbous and are joined together by a generally rectangular portion.

The package can include a first removable seal affixed to the inner surface of the first container sealing the at least one cavity and a second removable seal affixed to the inner surface of the second container sealing the at least one cavity, the first and second seals being concealed in the closed position and removable from the respective first and second container in the open position.

The first container can have a lip proximate an outer periphery of the wall of the first container and the second container has an edge proximate an outer periphery of the wall of the second container, with the lip of the first container releasably engaging with the edge of the second container in the closed position.

There can be at least two elongated items where the package includes a container having an outer surface and an inner surface, the outer surface having at least two elongated protrusions, the at least two protrusions spaced laterally apart from one another, the inner surface having at least two cavities each aligned with one of the protrusions and configured to receive one of the elongated items, and a generally planar sheet of material affixed to and extending between the protrusions. The planar sheet can be opaque to at least semi-transparent and can carry at least one of product information and promotional material. The sheet can be confined between outer lateral edges of the protrusions. The elongated items can be toothbrushes.

In more detail there can be a disposable display package that includes four toothbrushes, first and second containers connectable between an open position and a closed position, each container having an outer surface having two elongated protrusions generally parallel to each other and spaced laterally apart from one another, the protrusions each having a generally bulbous head end and a generally bulbous tail end, the head end extending outwardly further than the tail end, the first and second generally bulbous ends joined together by a generally rectangular portion, an inner surface having two cavities each shaped similar to and aligned with one of the protrusions, each cavity containing one of the toothbrushes, and a removable seal affixed to the inner surface of the container and individually sealing each of the cavities in the closed position, the seal divided into two segments, each segment removable separately from the inner surface in the open position, wherein the first container is attached to the second container by a hinge and the seals are concealed in the closed position and exposed in the open position, the protrusions of the first container are generally aligned with the protrusions of the second container in the closed position, and the head end of the protrusions of the first container are proximate the tail end of the protrusions of the second container in the closed position. There can be first and second generally planar sheets of at least partially semi-transparent material having one of product information and promotional material, each sheet affixed to and extending between two of the elongated protrusions on one of the first and second containers.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of an exemplary embodiment, will be better understood when read in conjunction with the appended drawings. It should be understood, however, that the invention is not limited to the precise arrangements and instrumentalities shown.

In the drawings:

FIG. **1** is a front perspective view of a display package in a closed position in accordance with an exemplary embodiment of the present invention;

FIG. **2** is a front perspective view of an item removed from the package of FIG. **1**;

FIG. **3** is a front perspective view of the display package of FIG. **1** in an open position:

FIG. **4** is an exploded view of the display package shown in FIG. **3**;

FIG. **5** is a side elevational view of the display package of FIG. **1**;

FIG. **6** is a top plan view of the display package of FIG. **1**;

FIG. **7** is a rear perspective view of the display package of FIG. **3** with one of the seal segments, and corresponding item, removed from the display package and with one of the adjacent seal segments partially removed from the display package; and

FIG. **8** is a side elevational view of two of the display packages shown in FIG. **1** on display.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings in detail, wherein like reference numerals indicate like elements throughout, there is shown in FIGS. **1-8**, a display package (package), generally designated **10**, in accordance with an exemplary embodiment of the present invention. The package **10** displays a plurality of elongated items **12** having a head end **12***a* and a tail end **12***b*. The items **12** may be any elongated item having a variable outer contour such as medical and oral care instruments, foodstuff items, or toys. The items **12** may be goods that are desirable to individually seal within the package **10**.

Referring to FIG. **2**, the items **12** are toothbrushes. Though any toothbrush may be used, the toothbrush may specifically be a single-use mini-toothbrush where the head end **12***a* may be in the form of a brush head containing a plurality of bristles **14** and a dentrifice bead **16** and the tail end may be in the form of a toothpick. The head end **12***a* may be a generally cylindrically shaped brush head and the tail end **12***b* may be a concavely curved and tapered tip connected by a convexly curved and elongated handle **18**. The overall head thickness T_h of the head end **12***a* may be larger than the overall tail thickness T_t of the tail end **12***b* (see FIG. **6**). Alternatively, the overall tail thickness T_t of the tail end **12***b* could be larger than the overall head thickness T_h of the head end **12***a*. Embodiments of mini-toothbrushes that may be contained within the package **10** are described in U.S. Patent Application Publication No. 2008/0120798 and are hereby incorporated by reference in their entirety.

Referring to FIGS. **1** and **3**, the package **10** is comprised of a transparent thermoformed polymeric material such that each of the items **12** may be entirely or at least partially visible through the package **10** and substantially impervious to outside elements. The package **10** is comprised of a polymeric material such as polyvinyl chloride (PVC) or polyethylene terephthalate (PET). However, the package **10** may be comprised of any polymeric material known for use in blister pack or clam-shell type packaging and may alternatively be comprised of any material or combination of materials, including partially transparent, semi-transparent, and/or opaque materials and may be formed in any manner such as injection or blow molding.

Referring to FIGS. **1** and **3**, the package **10** includes a first container **20** that may be connectable to a second container **22** between a closed position (FIG. **1**) and an open position (FIG. **3**). Each container **20**, **22** includes an outer surface **24** that has at least one elongated protrusion **26** extending outwardly from the package **10**. The outer surface **24** is partially planar around the base of each protrusion **26**. Each protrusion **26** further includes a head end **26***a* and a tail end **26***b*. Each head end **26***a* extends further outwardly from the package **10** than each tail end **26***b*. Each container **20**, **22** may include any number of protrusions **26** having any shape. The at least one protrusion **26** of the first container **20** is substantially the same size and shape as the at least one protrusion of the second container **22**. The first container **20** includes two substantially identical protrusions **26** and the second container **22** includes two substantially identical protrusions **26**. The protrusions **26** of each container **20**, **22** are laterally spaced apart from one another such that a portion of the outer surface **24** extends between the protrusions **26**. The protrusions **26** of each container **20**, **22** are generally parallel to one another. Alternatively, the protrusions **26** of each container **20**, **22** may be angled laterally with respect to one another.

Referring to FIG. **7**, each container **20**, **22** includes an inner surface **28** (only one being visible) having at least one inner cavity **30**. The inner surface **28** is partially planar and extends from the base of each cavity **30** and is parallel to the outer surface **24**. Each cavity **30** is aligned with one of the protrusions **26**. Each cavity **30** has a depth varying along the length of the corresponding protrusion **26** and is configured to receive one of the plurality of items **12**. Each cavity **30** has a head end **30***a* corresponding to the head end **26***a* of one of the protrusions **26** and a tail end **30***b* corresponding to the tail end **26***b* of one of the protrusions **26**. Each cavity **30** is substantially identical in shape to the corresponding protrusion **26**. However, each cavity **30** may have a shape that differs from the corresponding protrusion **26**. The cavities **30** are substantially identical to each other such that all of the protrusions **26** and their corresponding cavities **30** are substantially identical. However, the cavities **30** may be shaped differently.

Referring to FIGS. **1** and **3**, the head and tail ends **26***a*, **26***b* of each protrusion **26** are generally bulbous in shape with a planar end surface and are connected to each other by a generally rectangular portion **26***c*. The head end **26***a* of each protrusion **26** has a similar shape as the head end **12***a* of the item **12**, the tail end **26***b* of each protrusion **26** has a similar shape as the tail end **12***b* of the item **12** and the rectangular portion **26***c* has a similar shape as the handle **18** such that each protrusion **26** is generally similar in shape as the item **12**. The shape of the protrusion **26** may differ from the shape of the item **12** due to molding preferences, creating sufficient affixing surfaces, and/or providing sufficient contact surfaces between packages **10** as discussed further below. The item **12** is positioned within the cavity **30** such that a side of the item **12** with the most variance in profile extends outwardly from the package **10**. The shape of the cavity **30** and protrusions **26** generally conform to the item **12** using a minimal or reduced volume cavity **30** while sufficiently displaying the item **12**. In the embodiment shown for example, the bristles **14** of the head end **12***a* face generally outwardly rather than inwardly. The items **12** may alternatively be arranged with the side of the item **12** with the greatest variance in profile facing laterally. Facing the side of the item **12** with the greatest variance in profile either laterally or outwardly and generally conforming the package **10** to each of the items **12** reduces the amount of material used to produce the package **10**.

Referring to FIG. **5**, the head end **26***a* of each protrusion **26** extends outwardly from the respective outer surface **24** a first distance D_{p1} and the tail end **26***b* of each protrusion **26** extends outwardly from the respective outer surface **24** a second distance D_{p2}. Each protrusion **26** has a first constricting segment **26***d* between the rectangular portion **26***c* and the head end **12***a* and a second constricting segment **26***e* between the rectangular portion **26***c* and the tail end **26***b* (FIG. **3**). The rectangular portion **26***c* has a corresponding rectangular portion **30***c* within the cavity **30**. The first and second constricting segments **26***d*, **26***e* have corresponding first and second segments **30***d*, **30***e* within the cavity **30** that contact the item **12** proximate the head end **12***a* and the tail end **12***b* respectively, and at least partially restrict the amount the item **12** moves within the cavity **30** (FIG. **7**).

Referring to FIGS. **5** and **6**, the head end **26***a* of each of the protrusions of the first container **20** are, at least initially, proximate the tail end **26***b* of each of the protrusions of the second container **22** in the closed position such that the items **12** of the first container **20** are arranged in a "head-to-tail" configuration with respect to the items in the second container **22**. Each of the protrusions **26** of the first container **20** are generally aligned with one of the protrusions **26** of the second container **22** in the closed position. The protrusions **26** of the first container **20** are generally laterally aligned with one of the protrusions **26** of the second container **22** in the closed position (FIG. **6**). The protrusions **26** of the first container **20** are generally vertically aligned with one of the protrusions **26** of the second container **22** in the closed position (FIG. **5**). Although the package **10** shown contains two sets of back-to-back items **12** in the closed position, the package **10** may include one or more sets of back-to-back items **12** including two items **12**, four items **12** or six or more items **12**. The package **10** has a first maximum thickness T_{MAX1} proximate a top **10***a* of the package **10** measured through the protrusions **26** in the closed position and a second maximum thickness T_{MAX2} proximate a bottom **10***b* of the package **10** measured through the protrusions **26** in the closed position. The first maximum thickness T_{MAX1} is generally equal to the second maximum thickness T_{MAX2}. The first and second maximum thicknesses T_{MAX1} and T_{MAX2} may be generally equal to the sum of the first and second distances D_{p1} and D_{p2} plus any spacing between the outer surfaces **24** of the first and second containers **20**, **22**. In the embodiment of FIG. **5**, the first and second distances D_{p1} and D_{p2} are shown assuming the outer surfaces **24** of each container **20**, **22** are co-planar for simplicity of the illustrated distances only and is not limiting.

Aligning the protrusions **26** of the first container **20** with the protrusions **26** of the second container **22** and arranging the protrusions **26** in a "head-to-tail" arrangement reduces the amount of material needed to sufficiently display each item **12** and facilitates a compact stack of two or more packages **10** (FIG. **8**) during shipping, storage, and/or when on display as described further below.

Referring to FIGS. **4** and **7**, the first and second containers **20**, **22** each include a seal **36** covering and sealing each of the cavities **30**, at least initially, in the closed position. The seals **36** are each affixed to one of the inner surfaces **28** of the first and second containers **20**, **22**. The seals **36** may be partially or fully removable from the containers **20**, **22** and/or may be puncturable to allow access one of the items **12** in the open position. The seals **36** are comprised of an opaque foil similar to foil used in known blister packages. The seals **36** may be alternatively comprised of any material such as a polymeric membrane and may be transparent or semi-transparent. Each seal **36** includes first and second seal segments **36***a*, **36***b* attached by a perforation **38** such that each seal segment **36***a*, **36***b* is individually removable from the respective container **20**, **22** to individually access one of the items **12**. Sealing each

of the items **12** by an individual seal segment **36***a*, **36***b* allows for the remainder of the items **12** to be sealed alter accessing one of the items **12** (see FIG. **7**). After accessing one or more of the items **12**, the package **10** may be returned to the closed position and stored for later use. The seals **36** may be reseal-able such that the item **12** may be placed back in the respective cavity **30** after use and re-sealed. The seals **36** may be partially fixed to the respective container **20**, **22** such that the seal **36** may remain on the respective container **20**, **22** and eventually disposed of properly or resealed. The seals **36** are entirely removable from the respective container **20**, **22** and separately disposed of to stay out of the way while accessing the remaining items **12** and for recycling the first and second packages **20**, **22**. Each seal segment **36***a*, **36***b* includes a seal tab **40** to assist in gripping and removal of each seal segment **36***a*, **36***b*. The seals **36** are contained within either a lip **32** or an edge **34**, discussed below, such that the seals **36** are not affected by opening and closing the package **10** between the open and closed positions.

Referring to FIGS. **1**, **5**, **6** and **7**, the first container **20** includes an outwardly extending lip **32** proximate an outer periphery **20***a* of the first container **20** such that the outer surface **24** of the first container **20** is spaced outwardly from the outer periphery **20***a*. The second container **22** includes an inwardly extending edge **34** (see FIG. **7**) proximate an outer periphery **22***a* of the second container **22** such that the outer surface **24** of the second container **22** is spaced inwardly from the outer periphery **22***a*. The lip **32** is compression or snap fit with the edge **34** such that the first container **20** is releasably and selectably connectable with the second container **22** between the open and closed positions. The first and second packages **20**, **22** may initially include a tamper evident seal (not shown) comprised of an epoxy, heat seal, spot weld, or wrap. The seals **36** are protected and concealed in the closed position and accessed or opened from the respective cavity **30** in the open position. The first and second containers **20**, **22** may be re-closed after accessing an item **12** such that the remaining seals **36** are protected by the first and second containers **20**, **22** until an additional item **12** is desired.

Referring to FIGS. **1** and **3**, the outer periphery **20***a* of the first container **20** includes a first gripping tab **42** and the outer periphery **22***a* of the second container **22** includes a second gripping tab **44** vertically spaced from the first gripping tab **44**. The first and second gripping tabs **42**, **44** are created by varying the profile of one of the outer peripheries **20***a*, **22***a* with respect to the other. The first and second containers **20**, **22** are attached to each other by a hinge **46** at least partially extending along a lateral edge. Alternatively, the first and second container **20**, **22** may be completely detachable from one another.

Referring to FIGS. **3** and **8**, the second container **22** includes a vertically extending display tab **48**. The display tab **48** includes an aperture **48***a* extending therethrough. The aperture **48***a* allows for one or more packages **10**, **110**, **210** to be hung from and displayed on a prong **56**. The aperture **48***a* may be open toward a lateral side of the display tab **48** such that the display tab **48** forms a hook (not shown). The display tab **48** may alternatively, or in addition, extend from the first container **20**. The display tab **48** extends from the top **10***a* of the package **10** such that the items **12** are displayed vertically. Alternatively, the display tab **48** may extend in any direction from the package **10**, be removable from the package **10** or not be included at all.

In use, and referring to FIGS. **1** and **3**, a user grips the first gripping tab **42** with a first index finger and a first thumb (not shown) or presses on the first gripping tab **42** with just the first thumb and grips the second gripping tab **44** with a second index finger and a second thumb or presses on the second gripping tab **44** with just the second thumb and pull or push the first and second gripping tabs **42**, **44** in opposite directions until a sufficient force overcomes the compression or snap fit between the lip **32** and the edge **34** and any initial seal between the first and second containers **20**, **22**. Once the lip **32** and the edge **34** are detached from one another, the first container **20** may be pivoted with respect to the second container **22** about the hinge **46** to the open position. The user then grips one of the seal tabs **40** and pulls upwardly and outwardly until a sufficient force overcomes the bond between the seal **36** and the respective container **20**, **22**. Alternatively, the user may push one of the protrusions **30** inwardly until the item **12** pushes against the seal segment **36***a* and either detaches the seal segment **36***a* from the respective container **20**, **22** or the item **12** punctures and extends through the seal segment **36***a*. Once the item **12** is at least partially exposed, the user then removes and uses the item **12**. The item **12** is discarded after use. However, the item **12** may be placed back in the respective cavity **30**.

Referring to FIG. **3**, the package **10** includes a generally planar sheet of material (sheet) **50** affixed to and extending between two laterally spaced protrusions **26**. In embodiments including a sheet **50**, the protrusions **26** are not limited to any specific configuration and the package **10** need not contain two containers **20**, **22**. However, if two containers **20**, **22** are included, either one of or both the first and second containers **20**, **22** may include a separate sheet **50** as shown.

The sheet **50** includes one of product information and promotional material (print), generally **52**, printed thereon. The print **52** may also include additional indicia such as logos, graphics, colors, and ornamental designs. The sheet **50** is comprised of at least partially semi-transparent polymeric material such that at least a portion of one of the items **12** remains visible through the package **10** and sheet **50**. The sheet **50** may alternatively be substantially transparent or opaque and be comprised of any material, such as paper. The sheet **50** has an opaque portion **50***a* with print **52** so that the print **52** such as a brand name, is more clearly and prominently shown on the sheet **50**. The sheet **50** has a thickness less than the thickness of the material used to form the first and second containers **20**, **22**. The sheet **50** is thinner than the material of the first and second containers **20**, **22** because the integrity of the sheet **50** is not as critical as the integrity of the first and second containers **20**, **22** thereby reducing the amount of material used to manufacture the sheet **50** and ultimately the package **10**. The sheet **50** is attached to the protrusions **26** using an epoxy. Alternatively, the sheets **50** may be heat welded on to the protrusions **26**. The sheet **50** is confined between the outer lateral edges of the protrusions **26**. The sheet **50** spans the space between the protrusions **26** and provides sufficient space for the desired print **52**. Each sheet **50** is attached to the respective container **20**, **22** in a similar vertical configuration such that either the first container **20** or the second container **22** may be considered the "front" in the closed position. Use of the sheet **50** for displaying the print **52** reduces the size needed for the first and second protrusions **26** and thereby reduces the amount of material used in manufacturing the first and second containers **20**, **22**. The elongated rectangular portions **26***c* of each of the protrusions **26** have a generally planar surface **54** (see FIG. **4**) sufficiently wide to provide an attachment and support surface for each sheet **50**.

Referring to FIG. **8**, the exemplary package of FIGS. **1-7** may be used to perform a method of displaying a plurality of items **12** within a plurality of packages **110**, **210**. First and second packages **110**, **210** are manufactured to be substantially identical to one another and may include any combina-

tion of the above described features and configurations. Each package **110**, **210** is formed by thermoforming a sheet of polymeric material to form the first and second containers **20**, **22** of each package **110**, **210** in an open position having a shape as described above. The items **12** are placed in each corresponding cavity **30** of the first and second packages **110**, **210**. Each item **12** is sealed within one of the cavities **30** by a seal **36** or seal segment **36***a*, **36***b* as discussed above. A sheet **50** is attached to each container **20**, **22** as described above. The first container **20** is then connected with the second container **22** such that the seals **36** are protected or concealed in the closed position as discussed above. The closed package **110**, **210** are then stored or placed on display. The displayed packages **110**, **210** are mounted on a prong **56** or otherwise hung from each display tab **148**, **248**. The packages **110**, **210** may alternatively, be stacked in a display container (not shown). The sheet **50** (not visible in FIG. **8**) of the top or front most package **110** on display is visible to a consumer who is looking at the packages **110**, **210** on display. The items **12** within the first container **120** are at least partially viewed through the package **110** while on display. The items **12** within the second container **122** are at least partially viewed through the package **110** after removing the package **110** from the prong **56**. The head ends **126***a* of the protrusions **126** of the second container **122** of the first package **110** are in contact with the tail ends **226***b* of the protrusions **226** of the first container **220** of the second package **210**. The tail ends **126***b* of the protrusions **126** of the second container **122** of the first package **110** are in contact with the head ends **226***a* of the protrusions **226** of the first container **220** of the second package **210**. The alignment of the protrusions **126**, **226** and the "head-to-tail" configuration of the protrusions **126**, **226** within each package **110**, **210** allows the stack of packages **110**, **210** to form a generally rectangular and compact stack when on display while minimizing the amount of packaging material used to manufacture the first and second packages **110**, **210**.

It will be appreciated by those skilled in the art that changes could be made to the exemplary embodiment shown and described above without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the exemplary embodiment shown and described, but it is intended to cover modifications within the spirit and scope of the present invention as defined by the appended claims. For example, "an embodiment," and the like, may be inserted at the beginning of every sentence herein where logically possible and appropriate such that specific features of the exemplary embodiment may or may not be part of the claimed invention. The words "inwardly" and "outwardly" refer to directions toward and away from, respectively, the geometric center of the package **10**. Unless specifically set forth herein, the terms "a", "an" and "the" are not limited to one element but instead should be read as meaning "at least one".

Further, to the extent that a method does not rely on the particular order of steps set forth herein, the particular order of the steps should not be construed as limitation on the claims. Claims directed to the method of the present invention should not be limited to the performance of their steps in the order written, and one skilled in the art can readily appreciate that the steps may be varied and still remain within the spirit and scope of the present invention.

We claim:

1. A package for displaying a plurality of items comprising:

first and second containers connectable between an open position and a closed position, each container having:

an outer surface having at least two elongated protrusions, the at least two protrusions each having a head end and a tail end, the head end extending further outwardly from the package than the tail end,

an inner surface having at least one inner cavity aligned with each of the at least two protrusions, the cavity having a depth varying along the protrusion and configured to receive one of the plurality of items, and wherein

the at least two protrusions having substantially identical cavities, the head ends of the protrusions of the first container being proximate the tail ends of the protrusions of the second container in the closed position; and

a first removable seal affixed to the inner surface of the first container sealing the cavities of the first container and a second removable seal affixed to the inner surface of the second container sealing the cavities of the second container, the first and second seals being concealed in the closed position and removable from the respective first and second container in the open position,

wherein the first and second removable seals are each separable into at least two segments, each segment configured to individually seal one of the cavities.

2. The package of claim **1**, wherein the at least two protrusions of the first container are substantially the same size and shape as the at least two protrusions of the second container.

3. The package of claim **1**, wherein the protrusions of each container are laterally spaced from one another.

4. The package of claim **3** further comprising:

a generally planar front sheet of material affixed to and extending between the protrusions of the first container.

5. The package of claim **4** further comprising:

a generally planar rear sheet of material affixed to and extending between the protrusions of the second container.

6. The package of claim **3**, wherein each of the protrusions of the first container are generally aligned with one of the protrusions of the second container in the closed position.

7. The package of claim **1**, further comprising:

a toothbrush positioned within the at least one cavity.

8. The package of claim **7**, wherein each of the cavities and the corresponding protrusion are generally the same shape as the toothbrush.

9. The package of claim **7**, wherein the toothbrush includes a brush head received in the head end of the protrusion configured to face generally outwardly from the package in the closed position.

10. The package of claim **1**, wherein the package has a first maximum thickness proximate a top of the package measured through the protrusions in the closed position and a second maximum thickness proximate a bottom of the package measured through the protrusions in the closed position, the first maximum thickness being generally equal to the second maximum thickness.

11. The package of claim **1**, wherein the first container is attached to the second container by a hinge.

12. The package of claim **1**, wherein the head and tail ends of each of the at least one protrusions are generally bulbous and are joined together by a generally rectangular portion.

13. The package of claim **1**, wherein first container has a lip proximate an outer periphery of the wall of the first container and the second container has an edge proximate an outer periphery of the wall of the second container, the lip of the first container releasably engaging with the edge of the second container in the closed position.

14. The package of claim 5, wherein at least one of the planar front sheet of material or the planar rear sheet of material is at least partially semi-transparent.

15. A disposable display package comprising:

four toothbrushes;

first and second containers connectable between an open position and a closed position, each container having

an outer surface having two elongated protrusions generally parallel to each other and spaced laterally apart from one another, the protrusions each having a generally bulbous head end and a generally bulbous tail end, the head end extending outwardly further than the tail end, the first and second generally bulbous ends joined together by a generally rectangular portion,

an inner surface having two cavities each shaped similar to and aligned with one of the protrusions, each cavity containing one of the toothbrushes, and

a removable seal affixed to the inner surface of the container and individually sealing each of the cavities in the closed position, the seal divided into two segments, each segment removable separately from the inner surface in the open position,

wherein the first container is attached to the second container by a hinge and the seals are concealed in the closed position and exposed in the open position, the protrusions of the first container are generally aligned with the protrusions of the second container in the closed position, and the head end of the protrusions of the first container are proximate the tail end of the protrusions of the second container in the closed position.

16. The package of claim 15 further comprising:

first and second generally planar sheets of at least partially semi-transparent material having one of product information and promotional material, each sheet affixed to and extending between two of the elongated protrusions on one of the first and second containers.

* * * * *